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Attempts to reduce alcohol intake and treatment needs among people with probable alcohol dependence in England: a general population survey

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Abstract

Aims

To compare the proportion of people in England with probable alcohol dependence (Alcohol Use Disorders Identification Test [AUDIT] score ≥ 20) with those with other drinking patterns (categorized by AUDIT scores) in terms of motivation to reduce drinking and use of alcohol support resources.

Design

A combination of random probability and simple quota sampling to conduct monthly cross-sectional household computer-assisted interviews between March 2014 and August 2017.

Setting

The general population in all 9 regions of England.

Participants

Participants in the Alcohol Toolkit Study (ATS), a monthly household survey of alcohol consumption among people aged 16 years and over in England (n = 69,826). The mean age was 47 years (SD = 18.78; 95% Confidence Interval (CI) = 46.8−47) and 51% (n = 35,560) were female.

Measurements

Chi-Square tests were used to investigate associations with demographic variables, motivation to quit drinking, attempts to quit drinking, GP engagement and types of support accessed in the last 12 months across AUDIT risk zones.

Findings

A total of 0.6% were classified as people with probable alcohol dependence (95% CI = 0.5−0.7). Motivation to quit (X^2=1692.27, $p<0.001$), current attempts (X^2=473.94, $p<0.001$) and past-year attempts (X^2=593.67, $p<0.001$) differed by AUDIT risk zone. People with probable dependence were more likely than other ATS participants to have a past-year attempt to cut down or quit (51.8%) and have received advice from their GP about drinking (12.1%), and less likely to report no motivation to reduce their drinking (26.2%). Those with probable dependence had higher use

of self-help books and mobile apps than other ATS participants; however, 27.7% did not access any resources during their most recent attempt to cut down.

Conclusions

Adults in England with probable alcohol dependence, measured through the Alcohol Use Disorders Identification Test (AUDIT), demonstrate higher motivation to quit drinking and greater use of both specialist treatment and self-driven support compared with those in other AUDIT zones, but most do not access treatment resources to support their attempts.

Keywords: alcohol, hazardous and harmful drinking, probable alcohol dependence, general practice, alcohol treatment.

Introduction

Alcohol use disorders (AUD) present a large burden of disease and mortality in many countries around the world [1] and are associated with complex health comorbidities [2], loss of productivity and criminal justice costs [3]. In England, there were over 1.1 million hospital admissions with a primary or secondary diagnosis relating to alcohol in 2015/16, of which 27.5% was wholly attributable to alcohol [4]. The total annual cost to society from alcohol related harm is estimated to be £21 billion, while the annual alcohol related costs to the National Health Service (NHS) are estimated to be £3.5 billion a year [3]. Given the burden of AUD on UK's healthcare system, understanding unmet need for alcohol intervention and treatment is key to inform national policies.

In the UK, alcohol treatment includes community agencies offering advice, brief interventions, structured psychological interventions and detoxification services, while statutory agencies more often provide pharmacological interventions and other services with medically trained staff [5]. Primary care is a well-established treatment gateway in that general medical practitioners (GPs) conduct screening for harmful and dependent drinking, offer brief advice and interventions and refer to specialist alcohol services [6]. However, pathways to alcohol treatment and recovery can be difficult to navigate for people with alcohol dependence as many are met with high and at times unrealistic expectations of self-motivation [7]. Of 1 million people in the UK aged 16-65 who are alcohol dependent, only about 6% receive treatment and many do not enter treatment until their drinking has become more problematic and more difficult to treat [8]. Research has shown that hazardous and harmful drinking, especially in those who are younger, are under-identified by GPs [6, 9]. Equally significant, referral rates to specialist alcohol services are low compared to the number of people with harmful or dependent drinking presenting in primary care [10-11].

As a result of the challenges AUD populations face when navigating existing treatment pathways, varying individual motivation to reduce or stop drinking, and the low rate of identification of those with AUD in primary care, many are left with limited or no access to alcohol treatment. It is not currently known how many among AUD populations might benefit from treatment if it were more available. However, one indication of this might be the proportion of people with AUD who are contemplating or attempting to cut down their drinking on their

own. Policies that provide information and education delivered in schools, higher education and work places, as well as through mass media campaigns and social media, have the potential to reach non-engaging people who misuse alcohol. However, in the UK these policies are delivered within an environment of heavy alcohol marketing, potentially reducing their effect [12]. Whilst it has been established that most AUD patients first seek treatment from their GP when trying to receive help for drinking [2], more information is needed about where people turn to for advice and support if they are not offered help in primary and secondary care. Little is currently known about those who attempt to reduce drinking on their own and the support resources they access, if any.

Using data from a monthly cross-sectional general population household survey in England, this study compares the proportion of people with probable alcohol dependence (defined as an Alcohol Use Disorders Identification Test (AUDIT) score of ≥ 20) with hazardous and harmful alcohol use on (i) motivation and attempts to reduce or quit drinking and (ii) use of alcohol support resources to reduce drinking.

Methods

Design

The Alcohol Toolkit Study (ATS) is a monthly cross-sectional household survey of alcohol consumption among adults in England aged 16 and over. ATS data is collected by the marketing research firm Ipsos Mori with approximately 1,700 respondents being recruited every month through a combination of random probability and simple quota sampling [13]. This involves classifying England into over 170,000 initial output areas consisting of ~300 households, which are stratified by the 9 regions in England and the geodemographic ACORN profiling tool (see http://www.caci.co.uk/acorn/). Interviewers are then randomly assigned stratified output areas in which to conduct interviews with one member of each household. Interviews are conducted in an area until quotas based on area demographics (age, gender and working status) are fulfilled. As there is no predefined gross sample in the sample framework, a response rate cannot be calculated. Interviews are scheduled in the morning to maximize response probability. Given the high number of output areas in each wave (~200-300), which are sampled at random from more

than 170,000 initial output areas, it is unlikely that there would be substantial clusters resulting in bias.

Study sample

ATS survey data has been collected on a monthly basis since March 2014 (first wave) and is still ongoing. The sample reported here consists of all 42 waves of data that were collected from March 2014 to the time of analysis in August 2017.

Ethics

The ATS is an extension to the Smoking Toolkit Study (STS), which has ethical approval from UCL Ethics Committee (2808/005).

Measures

Demographic information was collected, including age and gender. Respondents completed the AUDIT, which consists of 10 items: items 1 to 3 are about alcohol consumption (AUDIT-C), 4 to 6 about alcohol dependence and 7 to 10 about harm resulting drinking [14-15]. Overall scores of between 0 and 40 were recorded. Respondents were categorized according to four risk zones; low risk (score of 0 to 7), hazardous drinking (8 to 15), harmful drinking (16 to 19) and probable dependence ($\geq$ 20). Those scoring 20 or higher on the AUDIT were classified as people with probable alcohol dependence. However, the AUDIT is intended to be used as a screening tool for alcohol misuse and harm, not as a diagnostic tool. An AUDIT score that suggests alcohol dependence warrants further examination to determine a diagnosis of alcohol dependence.

Those scoring $\geq$ 8 on the extended AUDIT [16] or $\geq$ 5 on the AUDIT-C (high-risk consumption), were asked additional questions regarding: (i) motivation to reduce drinking; (ii) GP/health worker involvement; and, (iii) alcohol support access. A question adapted from the Motivation to Stop Smoking Scale (MTSS) was used to assess the level of motivation to reduce alcohol consumption [13,17-18]. Respondents were asked how many attempts they have made to cut back on their drinking in the last 12 months and if they consider themselves to be currently cutting back.

Data analysis

Version 24 of SPSS was used for all analyses. Prevalence data are reported as percentages and means, including; AUDIT risk zones, gender distribution, average age and age range. In the planned analysis, the proportions of each AUDIT risk zone and associations with categorical variables, including; gender, age range, any attempt to quit drinking in the last 12 months, motivation to quit drinking, GP engagement and types of support accessed were tested via Chi-Square analyses. The analysis was conducted as if the sample was a simple random sample in accordance with the described sampling method.

In an unplanned analysis suggested by a reviewer, socio-demographics were included in hierarchical multiple regression analyses to test the impact of AUDIT risk zones on attempts to cut back drinking in the last 12 months, GP engagement and types of support accessed. These analyses were conducted while controlling for gender, age and ethnicity. In this model, AUDIT risks zones continued to be the strongest predictor of attempts to quit drinking, GP engagement and support access during the last attempt to quit (See supplementary file).

Marginal weights were applied to all cases. Weights were derived to match nationally representative target profiles for the time that each monthly wave was collected on the following variables; age, region of England, social grade, working status within sex, as well as tenure and ethnicity. The weighting involved an iterative sequence of adjustments whereby weights were applied to each responder such that the sample matched the targets on the first dimension, before being iteratively adjusted to match on a second dimension. This was continued until the final dimension had been matched and a good fit across dimensions had been achieved. SPSS Quantum (v 5.8) was used to weigh the data.

Results

The study sample was collected between March 2014 and August 2017 and totalled 70,641 adults. Of these, 69,826 (98.8%) provided complete data on age, gender, ethnicity, region and the AUDIT. A total of 19,297 (27.6%) indicated their level of motivation to reduce drinking and 21,777 (31.2%) reported engagement with GPs. A total of 18,590 (26.6%) had not discussed their drinking with a GP. For 5,161 respondents (7.4%), variables to characterise support access were complete.

Description of sample

In the sample of 69,826, 49.1% (n = 34,258) were male, 51% (n = 35,560) female and 7 respondents preferred not to disclose their gender. The mean age of the sample was 47 years (SD = 18.78) (95% Confidence Interval (CI) = 46.8−47). The majority of the sample was white (n = 60,417; 86.5%) and residing in the south east of England (n = 11,387; 16.3%) or London (n = 10,191; 14.6%).

AUDIT scores

Table 1 presents sociodemographic characteristics according to AUDIT scores. In response to the first AUDIT question about consumption frequency, 31.9% (n = 22,251) of the sample indicated that they never had a drink containing alcohol. The majority of respondents (86.5%; n = 60,368) (95% CI = 86.2−86.7) scored in the lowest risk zone with an AUDIT score of ≤ 7. The remainder of the respondents scored as follows: 12.0% (n = 8,412) (95% CI = 11.8−12.3) scored between 8-15 (hazardous drinking); 0.9% (n = 623) (95% CI = 0.8−1) scored between 16-19 (harmful drinking), and 0.6% (n = 423) (95% CI = 0.6−0.7) scored ≥ 20 (probable alcohol dependence). A higher proportion of those indicating harmful drinking and probable dependence were men compared to women. The average age in the low risk group was 48 years (SD = 19) (95% CI = 47.7−48), while the average age for hazardous drinking was 41.1 years (SD = 16.5) (95% CI = 40.7−41.4) and 36 years (SD = 15.8) (95% CI = 34.5−36.9) for harmful. The average age of people with probable dependence was 37.2 years (SD = 15.2) (95% CI = 35.7−38.7).

Motivation and attempts to reduce drinking

Approximately half of those with probable dependence indicated some degree of motivation to cut down their drinking (Table 2). A higher percentage of women (26.7%) compared to men (23.7%) reported that they had made at least 1 attempt to cut down or quit drinking in the last 12 months (X^2 (2, 17,777) = 21.15, $p < .001$). A higher proportion of those with probable dependence indicated they had made at least 1 attempt to cut back or quit drinking in the last 12 months (51.8%) or were currently trying to cut down (43.4%). People indicating harmful drinking and probable dependence were significantly more likely than those indicating low risk or hazardous drinking to have made at least 1 attempt to cut back or quit drinking in the last 12 months (X^2 (3, 17,777) = 593.67, $p < .001$). These findings indicate a strong desire among people with problematic drinking to cut down their drinking.

Resources used for cutting back on drinking

People with probable dependence had the highest rates of access to alcohol treatment such as one-to-one counselling, attending a specialist alcohol clinic or using medication (Table 3). They were significantly more likely to be given brief advice about reducing drinking by a GP or health worker within their surgery compared to other AUDIT risk zones (X^2 (3, 21,776) = 533.5, p < .001). Of the 306 respondents who were offered advice about cutting down in their GP surgery, there were significantly more men compared to women (72.2% vs 27.8%) (X^2 (1, 21,775) = 15.1, p = .001). Within the group of those with probable dependence, men were more likely to receive advice from their GP compared to women (82.4% vs 17.6%) (X^2 (1, 423) = 3.28, p = .046). Among those with probable dependence, there was no significant impact of gender on being spoken to about their drinking, offered support within their surgery and referred to a specialist clinic by their GP.

The mean age of respondents who received advice from their GP about drinking (51.2 years; 95% CI = 49.6−52.9) was significantly higher than of respondents who were not offered advice (43.8 years; CI = 43.6−44.1) (F (1, 21,773) = 56.3, p < .001). This age pattern was also present within people with probable dependence (F (1, 420) = 8.03, p < .05). More men compared to women (71.8% vs 28.2%) were also referred to an alcohol service or recommended to seek specialist help by their GP (X^2 (1, 21,775) = 5.27, p =.014).

People with probable dependence had the highest usage of an alcohol self-help book, a helpline, a mobile app or a website for help to cut back drinking compared to all other AUDIT zones. This may indicate a preference among some people with probable dependence for anonymous, technology-based support. Across all AUDIT risk zones, using nothing to help cut back or quit drinking during the most recent attempt was the most common response.

Discussion

The desire to reduce drinking among those with probable dependence, along with the relatively high use of self-help resources and self-discipline to cut down drinking, highlights a population potentially amenable to treatment through increased identification, engagement and referral. Alcohol consumption and sources of helpful information about drinking has been described in a large sample of secondary school pupils aged 11 to 15 in England, which found significant use of

social media and a help-line [19]. However, this is the first study to the authors' knowledge that use a large general population sample to identify people with probable alcohol dependence and the methods they used to reduce drinking. The study found low levels of support from GPs and low access to alcohol treatment services. Poor treatment access amongst people with alcohol dependence has been observed in the UK and Europe within the last decade [8, 9, 20]. While reported motivation to seek alcohol related support has been low in the past [21], our findings outline a relatively large population of people with probable dependence that are motivated to change their drinking patterns and are making attempts to reduce or quit drinking with and without alcohol intervention and treatment. This highlights the potential to improve treatment uptake and promote health among those consuming alcohol at problematic levels through increased engagement.

Those with probable alcohol dependence in this study had the highest use of alcohol services as well as use of a website, self-help book or mobile app. These findings demonstrate that this population are using low-cost support resources but are also receiving the most attention from traditional alcohol treatment. Reasons for the high proportion of people with probable dependence not using alcohol resources to help cut down or quit drinking (over 25%) could be a combination of a lack of awareness of existing support and treatment, poor accessibility, and a preference to seek assistance with mental health problems, social contact and work-related problems [21].

Perceived stigmatization has been associated with reduced treatment uptake in adults with AUD [22]. This suggests the need to improve anonymous and confidential support resources such as self-help material, mobile apps and websites, which may appeal to those who wish to remain anonymous whilst attempting to cut back on drinking alcohol, as suggested by findings of this study. Improving and expanding the accessibility of online and app-based resources could increase awareness among alcohol-related harm and act as an important first step toward alcohol treatment.

People with probable dependence had the highest rates of receiving advice or support from a GP as well as of attending specialist alcohol services, consistent with previous findings that people with dependence are more often identified in primary care GPs [6] and make up most of the population attending specialist alcohol treatment agencies across England [9]. However, the

overall rates of access to GP treatment was low, especially among those with harmful and hazardous drinking. The observed lack of engagement between those indicating harmful drinking or probable dependence and GPs may reflect lack of GP training and support regarding AUD [23].

Women, regardless of AUDIT risk zone, were less likely than men to receive advice about cutting down drinking from their GP. This gender interaction was also present only within those with probable dependence, which is contrary to previous findings that female who are alcohol dependent were more likely to be identified by GPs compared to males [6]. Whereas a previous study found women to be 1.7 times more likely to access alcohol treatment compared to men [9], this study did not find any significant difference between men and women. Women with AUD face several serious reproductive [24] and physical health risks associated with high alcohol consumption, including breast cancer [25] and higher mortality rates from liver cirrhosis compared to men [26-27]. As such, health practitioners may need to explore alternative means to engage female who are dependent on alcohol in available services to help reduce their drinking.

The average age of those who were offered advice from GPs about their drinking was significantly higher than those who were not offered advice. This is consistent with previous studies, which found that older patients in primary care had higher rates of GP identification of alcohol related problems compared to younger patients [6, 9]. An ageing population in the UK [28] where two-thirds of the primary care prescribing budget in local authorities is spent on patients over 65 [29], and the increasing GP access rates by people aged over 60 [30] may account for this pattern. GPs may also intervene more often with older patients due to a perception of more serious health consequences for older people who drink heavily.

Limitations

The ATS sample is drawn from the general population, rather than AUD cohorts, which means that only a minority scored over 7 on the AUDIT. However, due to the large sample size interviewed in the ATS, the number of respondents in AUDIT zone are sufficiently high to investigate sociodemographic characteristics in relation to levels of drinking, as well as motivation and support access within this population. The ATS does not collect data regarding the duration and intensity of treatment, such as one-to-one counselling, using a specialist clinic, and receiving support or advice from a GP and hence there could be considerable variability in

the nature of treatment reported. Questions on support access were only asked to a sub-population of respondents, with the assumption that those drinking occasionally are not engaged in support to reduce drinking. The primary measure to assess drinking (the AUDIT) is a self-report measure, which may result in under-estimations of alcohol consumption either by intention or because of poor recall ability. Furthermore, the AUDIT is designed to be used for screening, rather than a diagnostic tool. The cut-off scores for AUD are difficult to determine due to variance in sub-populations when it comes to gender and ethnicity [31]. Even so, the AUDIT has demonstrated high internal consistency and test/re-test reliability in comparison with other self-report screening measures [32]. The ATS data were collected only from individuals who were at home during the time of day when interviewers visited their homes, which may limit how representative this sample is of the general population. As a general population survey, the ATS may underestimate prevalence rates compared to other surveys of alcohol dependence. In fact, dependent drinking prevalence in the 2014 Adult Psychiatric Morbidity Survey was 0.6% higher than in the ATS sample [33].

Conclusion

These findings describe a population of people with probable alcohol dependence, motivated to reduce drinking and who are potentially amenable to attending alcohol treatment, if it was easier to gain access. Patients in alcohol treatment have the highest rates of completing treatment free of dependence compared to patients in treatment for opiates and non-opiate substances [34]. Given the success rate of alcohol treatment, more people should have the opportunity to complete it to reduce the negative impacts on health. However, addiction services across England have seen cuts up to 30% in the last few years, which means fewer addiction psychiatrists, psychologists and nurses and a greater burden on doctors, workers and volunteers with limited specialist training [35]. Closing the gap between need and receipt of alcohol treatment will require funding and capacity to identify, engage and treat alcohol patients in order to give patients the best chance at recovery. To achieve this aim will also require more specific estimates of AUD prevalence in a variety of contexts; including the general population, accident and emergency departments, primary and secondary care to understand where patients are best identified and thus establish ways of improved engagement [9, 36].

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References

1. World Health Organization. Global status report on alcohol and health. Geneva: World Health Organization; 2014. Available at: http://apps.who.int/iris/bitstream/10665/112736/1/9789240692763_eng.pdf?ua=1 (accessed 23 July 2017) (Archived at http://www.webcitation.org/6sAIh49js).
2. Schuckit M.A. Alcohol-use disorders. *Lancet* 2009; **373**: 492−501.
3. Public Health England. Alcohol Treatment in England 2013-14. London: Public Health England; 2014. Available at: http://www.nta.nhs.uk/uploads/adult-alcohol-statistics-2013-14-commentary.pdf (accessed 23 July 2017) (Archived at http://www.webcitation.org/6sAH9NxPx).
4. National Statistics. Statistics on Alcohol, England 2017. London: NHS Digital; 2017. Available at: https://www.gov.uk/government/statistics/statistics-on-alcohol-england-2017 (accessed 21 July 2017) (Archived at http://www.webcitation.org/6sCLuOvXb).
5. Rose A.K., Winfield H., Jenner J.H., Oyefeso A., Phillips T.S., Deluca P. *et al.* National survey of alcohol treatment agencies in England: Characteristics of treatment agencies. *J Subst Use* 2011; **16**: 407-21.
6. Cheeta S., Drummond C., Oyefeso A., Phillips T., Deluca P., Perryman K., *et al*. Low identification of alcohol use disorders in general practice in England. *Addiction* 2008; **103**: 766-73.
7. Gilburt H., Drummond C., Sinclair J. Navigating the Alcohol Treatment Pathway: A Qualitative Study from the Service Users' Perspective. *Alcohol Alcohol* 2015; **50**: 444−50.
8. Drummond C., Pilling S., Brown A., Copello A., Day E., Dervan J. *et al.* Alcohol use Disorders: Diagnosis, Assessment and Management of Harmful Drinking and Alcohol Dependence. London: National Institute for Health and Clinical Excellence; 2011. Available at: https://www.nice.org.uk/guidance/cg115 (accessed 22 August 2016) (Archived at http://www.webcitation.org/6sC8XWIPe).

9. Drummond C., Oyefeso A., Phillips T., Cheeta S., Deluca P., Perryman K. *et al*. *Alcohol needs assessment research project (ANARP).* The national needs assessment for England. London: Department of Health and the National Treatment Agency; 2004. Available at https://www.alcohollearningcentre.org.uk/_assets/Resources/ALC/OtherOrganisation/Alcohol_needs_assessment_research_project.pdf (accessed 22 August 2016) (archived at http://www.webcitation.org/6xOicz6xH).

10. Bendtsen P., Anderson P., Wojnar M., Newbury-Birch D., Müssener U., Colom J. *et al.* Professional's attitudes do not influence screening and brief interventions rates for hazardous and harmful drinkers: results from ODHIN Study. *Alcohol and Alcohol* 2015; **50**: 430-7.

11. Drummond C., Wolstenholme A., Deluca P., Davey Z., Donoghue K., Elzerbi C. *et al. Alcohol interventions and treatments in Europe*. In: Anderson P., Braddick F., Reynolds J. & Gual, A. eds. Alcohol Policy in Europe: Evidence from AMPHORA. 2nd ed. The AMPHORA project; 2013.

12. Burton R., Henn C., Lavoie D., O'Connor R., Perkins C., Sweeney K., *et al.* A rapid evidence review of the effectiveness and cost-effectiveness of alcohol control policies: an English perspective. *Lancet* 2016; **389**: 1558−80.

13. Beard E., Brown J., West R., Acton C., Brennan A., Drummond C. *et al.* Protocol for a national monthly survey of alcohol use in England with 6-month follow-up: 'The Alcohol Toolkit Study'. *BMC Public Health* 2015; **15**: 230.

14. Bush K., Kivlahan D.R., McDonell M.B., Fihn S.D., Bradley K.A. The AUDIT alcohol consumption questions (AUDIT-C): an effective brief screening test for problem drinking. *Arch Intern Med* 1998; **158**: 1789-95.

15. Daeppen J.B., Yersin B., Landry U., Pécoud A., Decrey H. Reliability and validity of the Alcohol Use Disorders Identification Test (AUDIT) imbedded within a general health risk screening questionnaire: results of a survey in 332 primary care patients. *Alcohol Clin Exp Res* 2000; **24**: 659-65.

16. Kaner E., Bland M., Cassidy P., Coulton S., Dale V., Deluca P. *et al*. Effectiveness of screening and brief alcohol intervention in primary care (SIPS trial): pragmatic cluster randomized controlled trial. *BMJ* 2013; **346**: e8501.

17. Kotz D., Brown J., West R. Predictive validity of the Motivation To Stop Scale (MTSS): a single-item measure of motivation to stop smoking. *Drug Alcohol Depend* 2013; **128**: 15-9.

18. Fidler J.A., Shahab L., West O., Jarvis M.J., McEwen A., Stapleton J.A. *et al*. 'The smoking toolkit study': a national study of smoking and smoking cessation in England. *BMC Public Health* 2011; **11**: 479.

19. National Statistics. Smoking, drinking and drug use among young people. England: 2016. London: National Statistics; 2017. Available at: http://digital.nhs.uk/media/33663/Smoking-Drinking-and-Drug-Use-Among-Young-People-in-England-2016-Report/default/sdd-2016-rep (accessed February 2018) (Archived at: http://www.webcitation.org/6xKeLfXQC).

20. Rehm J., Allamani A., Elekes Z., Jakubczyk A., Manthey J., Probst C. *et al.* Alcohol dependence and treatment utilization in Europe–a representative cross-sectional study in primary care. *BMC Fam Prac* 2015; **16**: 90.

21. Parkman T., Neale J., Day E., Drummond C. How Do People Who Frequently Attend Emergency Departments for Alcohol-Related Reasons Use, View, and Experience Specialist Addiction Services? *Subst Use Misuse* 2017; **2**: 1-9.

22. Keyes K.M., Hatzenbuehler M.L., McLaughlin K.A., Link B., Olfson M., Grant B.F. Stigma and treatment for alcohol disorders in the United States. *Am J Epidemiol* 2010; **172**: 1364-72.

23. Fucito U.M., Gomes B.S., Murnion B., Haber P.S. General practitioners' diagnostic skills and referral practices in managing patients with drug and alcohol-related health problems: implications for medical training and education programmes. *Drug Alcohol Rev* 2003; **22**: 417-24.

24. Gill J. The effects of moderate alcohol consumption on female hormone levels and reproductive function. *Alcohol Alcohol* 2000; **35**: 417-23.

25. Boffetta P., Hashibe M. Alcohol and cancer. *Lancet Oncol* 2006; **7**: 149-56.

26. Brady K.T., Randall C.L. Gender differences in substance use disorders. *Psychiatr Clin North Am* 1999; **22**: 241-52.

27. Fuchs C.S., Stampfer M.J., Colditz G.A., Giovannucci E.L., Manson J.E, Kawachi I. *et al.* Alcohol consumption and mortality among women. *N Engl J Med* 1995; **332**: 1245-50.

28. Office for National Statistics. Population estimates total persons for England and Wales and regions, mid 1971 – mid 2012. Newport: Office for National Statistics; 2013. Available at: http://webarchive.nationalarchives.gov.uk/20160107172024/http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk--england-and-wales--scotland-and-northern-ireland/population-estimates-timeseries-1971-to-current-year/index.html (accessed February 2018) (Archived at: http://www.webcitation.org/6wz5Pk6FH).

29. Department of Health: Long-term Conditions. Improving quality of life for people with long term conditions. London: Department of Health; 2013. Available at: https://www.yearofcare.co.uk/sites/default/files/pdfs/dh_improving%20the%20h&wb%20of%20people%20with%20LTCs.pdf (accessed January 2018) (Archived at: http://www.webcitation.org/6wz5pReVv).

30. Age UK. Briefing: Health and Care of Older People in England 2017. London: Age UK; 2017. Available at: http://www. ageuk.org.uk/Documents/EN-GB/For-professionals/Research/The_Health_and_Care_of_Older_People_in_England_2016.Pdf (accessed January 2018) (Archived at: http://www.webcitation.org/6wz6Npm1S).

31. Pittam G., Lines C. Screening for alcohol misuse in adults: External review against programme appraisal criteria for the UK National Screening Committee (UK NSC). Soulutions for Public Health; 2017. Available at: https://legacyscreening.phe.org.uk/policydb_download.php?doc=691 (accessed January 2018) (Archived at http://www.webcitation.org/6wgZhNmsZ).

32. Reinert D.F., Allen J.P. The alcohol use disorders identification test (AUDIT): a review of recent research. *Alcohol Clin Exp Res* 2002; **26**: 272-79.

33. McManus S., Bebbington P., Jenkins R., Brugha T. The Adult Psychiatric Morbidity Survey: Survey of Mental Health and Wellbeing, England 2014. Leeds: Health and Social Care Information Centre; 2014. Available at: http://content.digital.nhs.uk/catalogue/PUB21748/apms-2014-exec-summary.pdf (accessed September 2017) (Archived at http://www.webcitation.org/6tfDgTWjt).

34. Public Health England. Adult substance misuse statistics from the National Drug Treatment Monitoring System (NDTMS). London: Public Health England; 2016. Available at: http://www.nta.nhs.uk/uploads/adult-statistics-from-the-national-drug-treatment-monitoring-system-2015-2016[0].pdf (accessed March 2017) (Archived at http://www.webcitation.org/6sC6teSpR).

35. Drummond C. Cuts to addiction services are a false economy. *BMJ* 2017; **357**: j2704.

36. Pryce R., Buykx P., Gray L., Stone T., Drummond C., Brennan A. Estimates of Alcohol Dependence in England based on APMS 2014, including Estimates of Children Living in a Household with an Adult with Alcohol Dependence. Sheffield: University of Sheffield; 2017. Available at: http://www.nta.nhs.uk/uploads/estimates-of-alchohol-dependency-in-england[0].pdf (accessed 22 July 2017) (Archived at: http://www.webcitation.org/6sC7yvOXC).

Tables

Table 1. Sociodemographic characteristics according to AUDIT score.

		AUDIT Risk Zone (%)			
	Total n (%) n=69,826	Low Risk (0-7) n=60,368	Hazardous drinking (8-15) n=8,412	Harmful drinking (16-19) n=623	Probable alcohol dependence (20+) n=423
Respondents		86.5	12	0.9	0.6
Gender					
Male	34,258(49.1)	46.2	66.9	71.1	71.6
Female	35,560(51)	53.8	33.1	28.9	28.4
Age bands					
16-24	10,038(14.4)	12.8	23.1	35.9	28.4
25-34	11,694(16.7)	16.6	17.3	20.2	22.3
35-44	11,625(16.6)	16.6	17.2	13.9	17.1
45-54	12,102(17.3)	17	19.6	16	18.7
55-64	9,780(14)	14.2	13.5	7.9	8.3
65+	14,586(21)	22.8	9.3	6.1	5.2
Ethnicity					
White	60,417(86.5)	85	96.4	95.3	95.5
Non-white	9,409(13.5)	15	3.6	4.7	4.5
Region					
East Midlands	6,059(8.8)	9.2	6.2	6.3	5.9
Eastern	7,905(11.3)	11.8	8.1	7.9	8.3
London	1,019 (14.6)	15.4	9.4	10.6	8.8
North East	3,559(5.1)	4.5	8.8	8.2	11.8
North West	9,260(13.3)	12.4	18.9	20.3	19.7

South East	11,387(16.3)	16.1	17.9	16.4	19
South West	7,163(10.3)	10.3	10.3	9.2	10
West Midlands	7,065(10.1)	10.7	6.4	5.6	4.7
Yorkshire and Humber	7,154(10.2)	9.7	14.0	15.6	11.8

*<.05, **<.001, Weighted n's are reported.

Table 2. Motivation to reduce alcohol consumption and attempts to cut down.

		AUDIT Risk Zone (%)				
	Total n (%) n=19,297 [a]	Low Risk (0-7) n=9,846	Hazardous drinking (8-15) n=8,405	Harmful drinking (16-19) n=623	Probable alcohol dependence (20+) n=423	X^2(df)
Strength of motivation to cut back [b]						
I REALLY want to cut down on drinking alcohol and intend to in the next month	677(3.5)	2.2	4.3	8	12.5	
I REALLY want to cut down on drinking and intend to in the next 3 months	255(1.3)	0.7	1.8	2.4	4.3	
I REALLY want to cut down on drinking but I don't know when I will	354(1.8)	0.9	2.2	6.3	10.4	1692.08**(24)
I want to cut down on drinking alcohol and hope to soon	838(4.3)	2.5	5.6	9.1	14.9	
I want to cut down on drinking alcohol but haven't thought about when	893(4.6)	3.2	5.8	9.1	7.3	
I think I should cut down on drinking alcohol but don't	2,523(13.1)	8.7	16.8	25	23.6	

really want to					
I don't want to cut down on drinking alcohol	13,629(70.6)	81.2	62.8	39.2	26.2
Don't know/Refused	128(0.6)	0.6	0.7	0.8	0.7

*<.05, **<.001, df = 24. Weighted n's are reported, Chi-Square tests were used to compare the proportions of respondents indicating different levels of motivation to cut back or quit drinking within each AUDIT risk zone, [a] Of the included sample, 27.6% provided responses for the level of motivation to reduce drinking, [b] One answer only.

Table 3. Alcohol support resources accessed during the last 12 months.

	Total n (%) [a]	Low Risk (0-7)	Hazardous drinking (8-15)	Harmful drinking (16-19)	Probable alcohol dependence (20+)	X^2
GP Intervention [b]	*n=21,777 [c]*	*n=12,326*	*n=8,405*	*n=623*	*n=423*	
No, a doctor or health worker within my GP surgery did not discuss my drinking.	18,590(89.5)	91.6	88.9	77.7	58.3	558.03**
A doctor or other health worker within my GP surgery asked about my drinking	1,857(8.5)	7.6	8.9	15.4	19.1	114.57**
A doctor or other health worker within my GP surgery offered advice about cutting down on my drinking	306(1.4)	0.5	1.9	6.1	12.1	533.5**
A doctor or other health worker within my GP surgery offered help or support within the surgery to help me cut down	83(0.4)	0	0.4	1.8	8.3	763.15**
A doctor or health worker within my GP surgery referred me to an alcohol service or advised me to seek specialist help	117(0.5)	0.1	0.4	1.9	13.7	1441**
Don't know/refused	12(0.1)	0.1	0	0	0	.878
No discussion about drinking with a GP [d]	*n=18,590 [e]*	*n=10,799*	*n=7,098*	*n=461*	*n=232*	

I have not seen a doctor or other health worker within my GP surgery	6,977(37.5)	36.7	38.2	43.6	43.1	
I have seen a doctor or health worker, but they did not discuss my drinking	11,588(62.3)	63.1	61.7	56.4	56.8	16.93*
Don't know	25(0.1)	0.1	0.2	0	0	
Support accessed during last attempt to cut back [b]	*n=5,161* [f]	*n=2,050*	*n=2,600*	*n=291*	*n=220*	
Any medicines (e.g. acamprosate (Campral), disulfiram (Antabuse), nalmefene (Selincro)	59(1.1)	0.5	0.8	1.7	10.5	180**
Attended one or more one-to-one or group counselling/advice/support sessions for help with drinking	66(1.3)	0.2	1.1	1.7	12.3	229.06**
Attended a specialist alcohol clinic or centre for help with drinking	64(1.2)	0.1	0.7	3.1	15.9	423**
Consulted a community pharmacist for help with drinking	20(0.4)	0.1	0.4	0.3	2.7	35.77**
Phoned a helpline for help with drinking (e.g. DrinkLine)	22(0.4)	0.1	0.3	0	5.0	115.28**
An alcohol self-help book or booklet	59(1.1)	0.6	1.1	1.4	5.9	49.1**
Visited a website for help with drinking	110(2.1)	1.4	2.3	2.8	6.3	24.55**

Used an alcohol application (“app”) on a handheld computer (smartphone, tablet, PDA)	39(0.8)	0.4	0.9	1.0	1.4	5.1
Hypnotherapy for help with drinking	9(0.2)	0.1	0.2	0	0.9	7.48
Acupuncture for help with drinking	16(0.3)	0.4	0.1	0.3	2.3	32.43**
None/Nothing	2,001(38.8)	42.5	37.3	34.1	27.7	28.25**
Will power/self-discipline	514(10)	8.2	10.9	11.7	13.2	13.1*

*<.05, **<.001, df = 3, Weighted n’s are reported, Chi-Square tests were used to compare the proportions of respondents indicating usage of different support resources within each AUDIT risk zone, [a] Each response to which support measures respondents had used in their last attempt to cut down or quit drinking (eg. website, acupuncture etc.) were treated as individual items. Thus, reported n’s represent the total respondents providing a response to each individual support option, rather than across all possible options of support. Reported % outlines the proportion of respondents who indicated yes to using each type of support, [b] Multiple answers, [c] Of the included sample, 31.2% provided responses for GP engagement, [d] One answer only, [e] Those answering no to having a discussion with a GP about their drinking (n = 18,590; 26.6%) were prompted to indicate whether they had not seen their GP or had seen their GP but not discussed their drinking, [f] Of the included sample, 7.4% provided responses for support access.